



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,864	11/02/2001	Anuj Batra	TI-32504	7458

23494 7590 02/07/2006

TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

EXAMINER

WANG, TED M

ART UNIT PAPER NUMBER

2634

DATE MAILED: 02/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/003,864

Applicant(s)

BATRA ET AL.

Examiner

Ted M. Wang

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01/21/2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 14-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 11 and 14-20 is/are rejected.
- 7) ☒ Claim(s) 9 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06/10/2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Request for Continued Examination

1. The request filed on November 21, 2005, for a Request for Continued Examination (RCE) under 37 CFR 1.114 based on parent Application No. 10/003,864 is acceptable and a RCE has been established. An action on the RCE follows.

Response to Arguments

2. Applicant's amendments and arguments, filed on November 18, 2005, with respect to the rejection(s) of claims 8, 10, 19, and 20 under Double Patenting have been fully considered and are persuasive. Therefore, the rejection under Double Patenting of the claims identified above has been withdrawn. However, the rejection of claim 1 is maintained, see paragraph 11 below.

3. Applicant's amendments and arguments, filed on November 18, 2005, with respect to the rejection of claims 1-7 and 11-18 under 35 USC § 102(e) have been fully considered but they are not persuasive. The Examiner has thoroughly reviewed Applicant's arguments but firmly believes that the cited reference reasonably and properly meets the claimed limitation as rejected.

(1) regarding rejection under 35 USC 102(e):

Applicant's argument –

a) " It is respectfully submitted that Mansfield does not disclose or suggest the presently claimed invention including the step of assigning the good channels to a good window and the bad channels to a bad window by using an adoptive frequency hopping scheme in independent Claim 1, albeit defined as assigning a plurality of good channels

to a good window and a plurality of bad channels to a bad window by an adaptive frequency hopping scheme in independent Claim 19." As recited, and

b) "Mansfield's scheme is not frequency adaptive." as recited.

Examiner's response –

With regard argument a), the Examiner's response has been addressed in the last Final Office Action, # 20050810, dated 8/19/2005.

With regard argument b), Mansfield teaches " An important aspect of the invention is that the BT system is modified to look ahead to see which BT channel frequencies are soon be used, and, when comparing the potential channel frequencies with a separately maintained channel frequency blacklist of channel frequencies having unacceptable interference thereon, the BT system dynamically adapts among the different length BT packet lengths to avoid transmission on blacklisted channel frequencies. The system of the invention is then able to maintain higher performance under conditions of interference by avoiding the channel frequencies on the blacklist, which are known to suffer from high interference or poor transmission quality." cited in column 7 lines 34-46.

As recited in the specification of the instant application, paragraph 5, lines 1-2, "One approach for adaptive frequency hopping is to hop over a reduced set of hopping frequencies that are deemed to be free of interference." , the Mansfield's reference teaches the exact function as that of adaptive frequency hopping scheme performed by the instant application. Thus, for the explanation addressed in the above paragraph, the rejection under 35 U.S.C. 102(e) with Mansfield's reference is adequate.

Claim Objections

4. Claims 1 and 19 are objected to because of the following informalities:

- In claim 1, line 7, and claim 19, line 11, change "adoptive" to --- adaptive ---.

Appropriate correction is required.

5. Claims 14-17 are objected to because they are depending on the cancelled claims 12 and 13.

- In claims 14 and 18, line 1, "12" should be changed to --- 11 ---.
- In claims 15 and 17, line 1, "13" should be changed to --- 11 ---.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 2, 5-8, and 11, 14-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Mansfield (US 6,704,346).

As shown in figures 5-10,

- With regard claim 1, Mansfield discloses a method of intelligent frequency hopping (column 18, lines 56-61), comprising:

sampling a plurality of channels in the frequency band (column 4 lines 41-62 and column 9 lines 23-28);

identifying each channel in the plurality of channels as a good channel or a bad channel as a function of a predetermined factor (column 9, lines 23-50); and

assigning the good channels to a good window and the bad channels to a bad window by using an adaptive hopping scheme (column 7, lines 34-46, column 11 line 14 – column 12 line 45, column 9 lines 23-50, and column 18 lines 60-61).

- With regard claim 2, Mansfield further discloses wherein sampling the plurality of channels samples all channels available to a network (column 4 line 63-67 and column 9 lines 23-28).
- With regard claim 5, Mansfield further discloses wherein each window has at least four slots to which the channels may be assigned (see Table 2A).
- With regard claim 6, Mansfield further discloses wherein each window has an even number of slots to which the channels may be assigned (see B in Table 2C).
- With regard claim 7, Mansfield further discloses determining a ratio of the good channels in the band to the bad channels in the band (Table 2A). Mansfield discloses the claimed invention except for determining a ratio of the good channels in the band to the bad channels in the band. It would have been an obvious matter of design choice to determine the ratio of the good channels in the band to the bad channels in the band from table 2A, wherein both bad channels and good channels have been listed in the channel blacklist table, since applicant has not disclosed that determines the ratio of the good channels in the band to the bad channels in the band solves any stated problem or is for any particular purpose and it appears that Mansfield's reference has

already provided the information with respect to the ratio of the good channels in the band to the bad channels in the band from table 2..

- With regard claim 8, Mansfield further discloses assigning a first size to a good window, and a second size to a bad window, such that the ratio of the size of the good window to the size of the bad window is the same as the ratio of the good channels in the band to the bad channels in the band (Table 2A). In Table 2A, there are 18 “good” channels and 5 “bad” channels and the ratio is 18/5. Since the “good” channels and “bad” channels are separated in the blacklist table and each channel contains only one frequency, the “good” window size will be 18 and the “bad” window size will be 5 and the ratio will also be 18/5 as shown in the Table 2A. All other limitation is contained in claim 7. The explanation of all the limitation is already addressed in the above paragraph.
- With regard claim 11, Mansfield further discloses sampling at least one channel in an original hopping sequence (column 4, line 63-column 7, line 25).
- With regard claim 14, Mansfield further discloses detecting the good channel, and assigning the good channel to the good window, when a good window is being generated (column 11, line 14-column 12, line 45).
- With regard claim 15, Mansfield further discloses the act of detecting the bad channel, and assigning the bad channel to a bad window, when a bad window is being generated (column 11, line 14-column 12, line 45).
- With regard claim 16, Mansfield further discloses generating the good window by assigning the good channels to a window (column 11, line 14-column 12, line 45).
- With regard claim 17, Mansfield further discloses generating the bad window by assigning the bad channels to a window (column 11, line 14-column 12, line 45).

Art Unit: 2634

- With regard claim 18, Mansfield further discloses wherein all of the channels in the good window are used before any channels in the bad window are used (column 3 lines 1-25).
- With regard claim 19, Mansfield further discloses assigning a first size to a good window, and a second size to a bad window, such that the ratio of the size of the good window to the size of the bad window is the same as the ratio (Table 2A). In Table 2A, there are 18 “good” channels and 5 “bad” channels and the ratio is 18/5. Since the “good” channels and “bad” channels are separated in the blacklist table and each channel contains only one frequency, the “good” window size will be 18 and the “bad” window size will be 5 and the ratio will also be 18/5 as shown in the Table 2A. All other limitation is contained in claim 7. The explanation of all the limitation is already addressed in the above paragraph.
- With regard claim 20, all limitation is contained in claims 7, 18, and 19. The explanation of all the limitation is already addressed in the above paragraph.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mansfield (US 6,704,346).

- With regard claims 3 and 4, Mansfield further discloses a blacklist maintenance algorithm 40 by using the signal strength indicator (RSSI) to compare with a threshold to indicate the significant interference channel as "bad" or distressed, otherwise as "good" (column 9, lines 5-15 and lines 23-50).

Mansfield does not disclose expressly wherein the good/bad channel is defined as a channel having at least a predetermined Quality Level of Service (QLS).

At the time the invention was made, it would have been to a person of ordinary skill in the art to choose QLS to compare with a threshold to indicate the significant interference channel as "bad" or distressed, otherwise as "good" within the blacklist algorithm 40. Applicant has not disclosed that wherein the good channel is defined as a channel having at least a predetermined Quality Level of Service (QLS)

provides an advantage, is used for a particular purpose, or solves a stated problem.

One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the good channel is defined as a channel having at least a predetermined signal strength indicator (RSSI) because any predetermined factor, such as the signal to noise ratio (SNR), Quality Level of Service (QLS), or signal strength indicator (RSSI) used to indicate the receiving signal quality can be properly used to compare a threshold in order to determine a "good" or "bad" channel. Therefore, it would have been obvious to one of ordinary skill in this art to modify Mansfield's blacklist algorithm 40 to obtain the invention as specified in claims 3 and 4.

Double Patenting

Art Unit: 2634

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claim 1 is provisionally rejected on the ground of nonstatutory double patenting over claim 9 of copending Application No. 10/003,865. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter. Although the conflicting claims are not identical, they are not patentably distinct from each other because the broader application claim would have been obvious in view of the narrower issued claim.

- Claim 9 of copending Application No. 10/003,865 recites the limitations "sampling a plurality of channels in the frequency band", "identifying each channel in the plurality of channels as a good channel or a bad channel as a function of a predetermined factor", "assigning the good channels to a good window and the bad channels to a

bad window by using an adaptive hopping scheme", and other limitation as described in claim 1. On the other hand, claim 1 of the instant application recites the limitations "sampling a plurality of channels in the frequency band", "identifying each channel in the plurality of channels as a good channel or a bad channel as a function of a predetermined factor", "assigning the good channels to a good window and the bad channels to a bad window by using an adaptive hopping scheme".

Therefore, claim 1 of the instant application merely broadens the scope of claim 9 of copending Application No. 10/003,865 by eliminating the limitation as described in claim 1. It is obvious the limitations of claim 9 of copending Application No. 10/003,865 read on the limitations of claim 1 of the instant application. Further, it has been held that the omission of an element and its function is an obvious expedient if the remaining elements perform the same functions as before. See *In re Karlson*, 136 USPQ 184 (CCPA 1963). Also note *Ex parte Rainu*, 168 USPQ 375 (BdPatApp&Int 1970); omission of a reference element whose function is not needed would be obvious to one skilled in the art.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Allowable Subject Matter

12. Claims 9-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted M. Wang whose telephone number is 571-272-3053. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ted M Wang
Examiner
Art Unit 2634

Ted M. Wang


CHIEH M. FAN
SUPERVISORY PATENT EXAMINER